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OU10 PROPOSED ACTION MEMORANDUM FOR THE REMOVAL OF THE BUILDING 443 UNDERGROUND FUEL OIL TANKS #3 AND #4

Prepared for:

U.S. Department of Energy
Rocky Flats Field Office
Rocky Flats Environmental Technology Site
Golden, Colorado

Prepared by:

EG&G Rocky Flats, Inc.
Golden, Colorado

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LIST OF ACRONYMS

AOC	Area of Concern
ARARs	Applicable or Relevant and Appropriate Requirements
BGS	below ground surface
6CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHWA	Colorado Hazardous Waste Act
DOT	Department of Transportation
IA	Industrial Area
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
kg	kilogram
L	liter
MeCl	methylene chloride
µg	microgram
mg	milligram
mg/L	milligram per liter
mg/kg	milligram per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NPL	National Priorities List

LIST OF ACRONYMS, (Continued)

OSHA	Occupational Safety and Health Administration
OU	Operable Unit
NIOSH	National Institute of Occupational Safety and Health
PAM	Proposed Action Memorandum
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
TCA	1,1,1,-trichloroethane
TCE	trichloroethene
TCFM	trichlorofluoromethane
TPH	total petroleum hydrocarbons
DOE	Department of Energy
EPA	Environmental Protection Agency
VOCs	volatile organic compounds

DRAFT PROPOSED ACTION MEMORANDUM FOR THE REMOVAL OF THE BUILDING 443 UNDERGROUND FUEL OIL TANKS #3 AND #4

1.0 PURPOSE AND SCOPE

The purpose of this Proposed Action Memorandum (PAM) is to request and document approval of the Department of Energy's (DOE's) proposed removal of two underground fuel oil tanks (Tanks #3 and #4) located adjacent to Building 443 Tank #4 has been identified as Individual Hazardous Substance Site (IHSS) 129 at the Rocky Flats Environmental Technology Site (RFETS) located in Golden, Colorado IHSS 129 is located within Operable Unit 10 (OU10), just east of Building 443 (Figure 1-1) Tank #3, although not included in IHSS 129 or OU10, is adjacent to Tank #4, and has been incorporated into this PAM because of its age and potential past association with Tank #4 The tanks are currently out of service and are suspected to be breached Five pipelines, believed to be partially wrapped in asbestos, are connected to Tanks #3 and #4 On September 28, 1994, Tank #3 contained water-phase liquid and sludge On September 28, 1994, Tank #4 contained water-phase liquid and sludge In addition, Tank #4 is believed to have received 55 gallons of spent solvents every two years between 1967 and 1986

The objective of this removal action is to significantly reduce potential risks to the public posed by total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) present in the IHSS by removing the contaminant source This removal action assumes that no radionuclides are present above background in the vicinity of Tanks #3 and #4 The proposed removal action includes the following

- conducting subsurface soil sampling to better define the extent of contamination,
- removing and containerizing the contents of the tanks,

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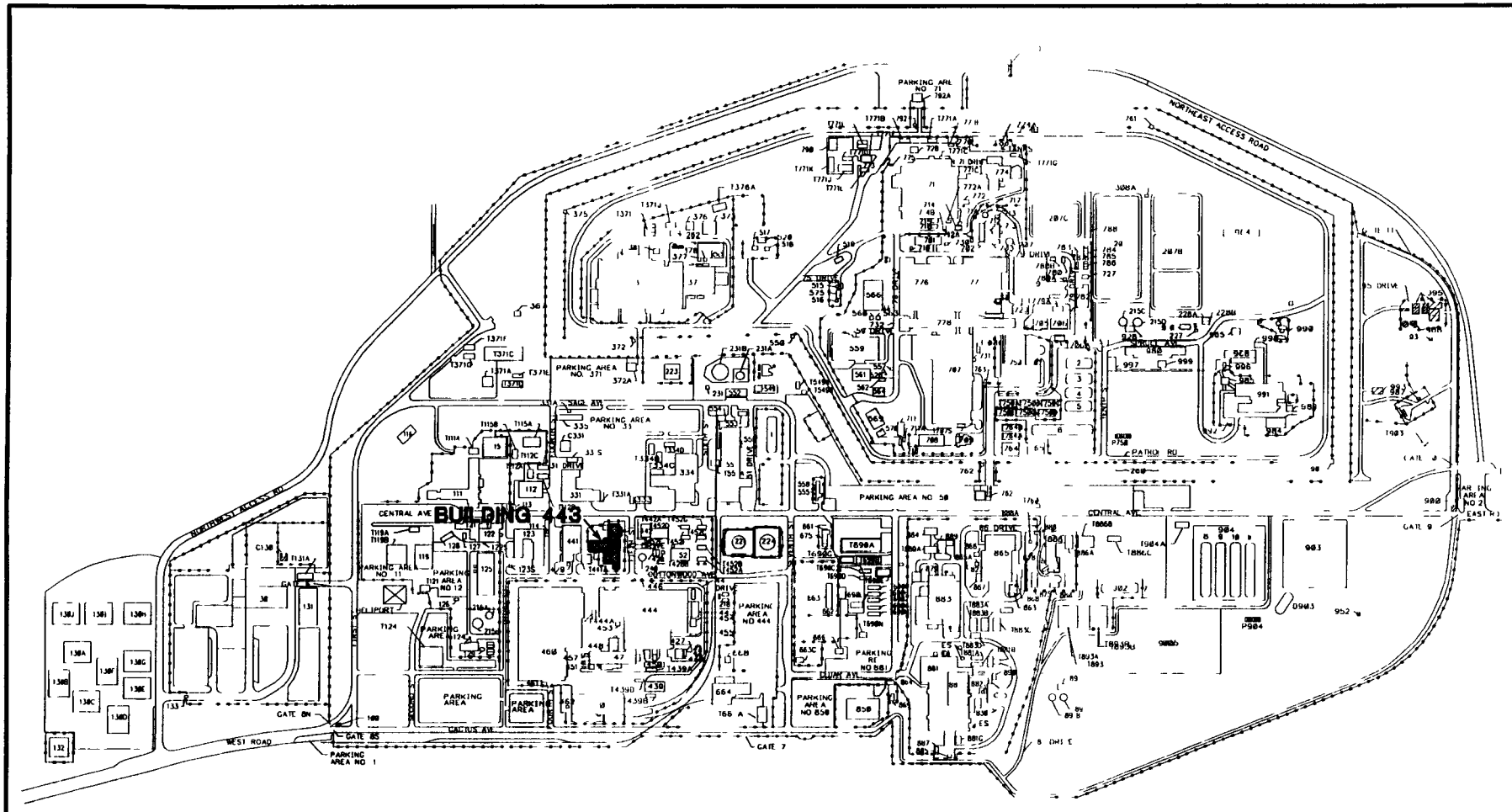

LEGEND

FENCE

N

Scale

0 250 500 feet

U.S. DEPARTMENT OF ENERGY

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

FIGURE 1-1
BUILDING 443 LOCATION MAP

DATE 08/31/94	DR GFD	CKD TJW
SCALE NOTED	DWG NO 05397-45	

- excavating the soil to expose the tanks making every effort to stratify and map the soil as it's removed so it can be returned to its original location;

- excavating both tanks, piping, ancillary equipment (vaults, controls, etc), and metal strapping,

- containerizing the water encountered in the excavation, all decontamination (decon) water, the tanks' contents,

- temporary containerizing the soil encountered in the excavation within the area of concern (AOC),

- on-site decontaminating and packaging the tanks and metal straps for off-site recycling or disposal depending on which option is more feasible and cost-effective,

- on-site decontaminating the equipment and workers,

- off-site recycling of the sludge and oil-phase contents of the tanks,

- treating the water-phase contents of the tank and the tank/pipe decon water on-site by an oil/water separator and granular activated carbon for disposal at the Building 374 Evaporator,

- treating the water encountered in the excavation in the OU2 treatment plant;

- disposing the equipment and worker decon water at the OU2 Decon Pad;

- on-site packaging and treating/disposing of the asbestos, miscellaneous piping, ancillary equipment, and other construction waste at an approved off-site facility,

- leave the concrete pads (used to ballast the tanks) *in-situ*; and

- reclaim the site back to its prior condition

All excavated soil will be temporarily containerized within the AOC, the extent of which is presented on Figure 1-2, and returned to its original position to be remediated, if necessary, under the final record of decision (ROD) for the IHSS (EPA, 1989) Every effort will be made to segregate the clean soil from the potentially-contaminated soil, and the excavated soils will be mapped

The lateral extent of the excavation is estimated to be 40 feet in the north-south direction and 30 feet in the east-west direction The vertical extent of the excavation is estimated to be 15 feet below ground surface (BGS) Post-excavation sampling will be conducted to characterize the soil on the perimeter of the excavation

The proposed action is consistent with the long-term remedial goals of OU10 and IHSS 129 because it eliminates source-term contamination This removal does not constitute the final remedy for this IHSS. The results of this removal action will support the objectives of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation (RI) (collectively, RFI/RI) for OU10 by providing additional environmental characterization data The data obtained from this action will be incorporated into any potential further evaluation of this IHSS

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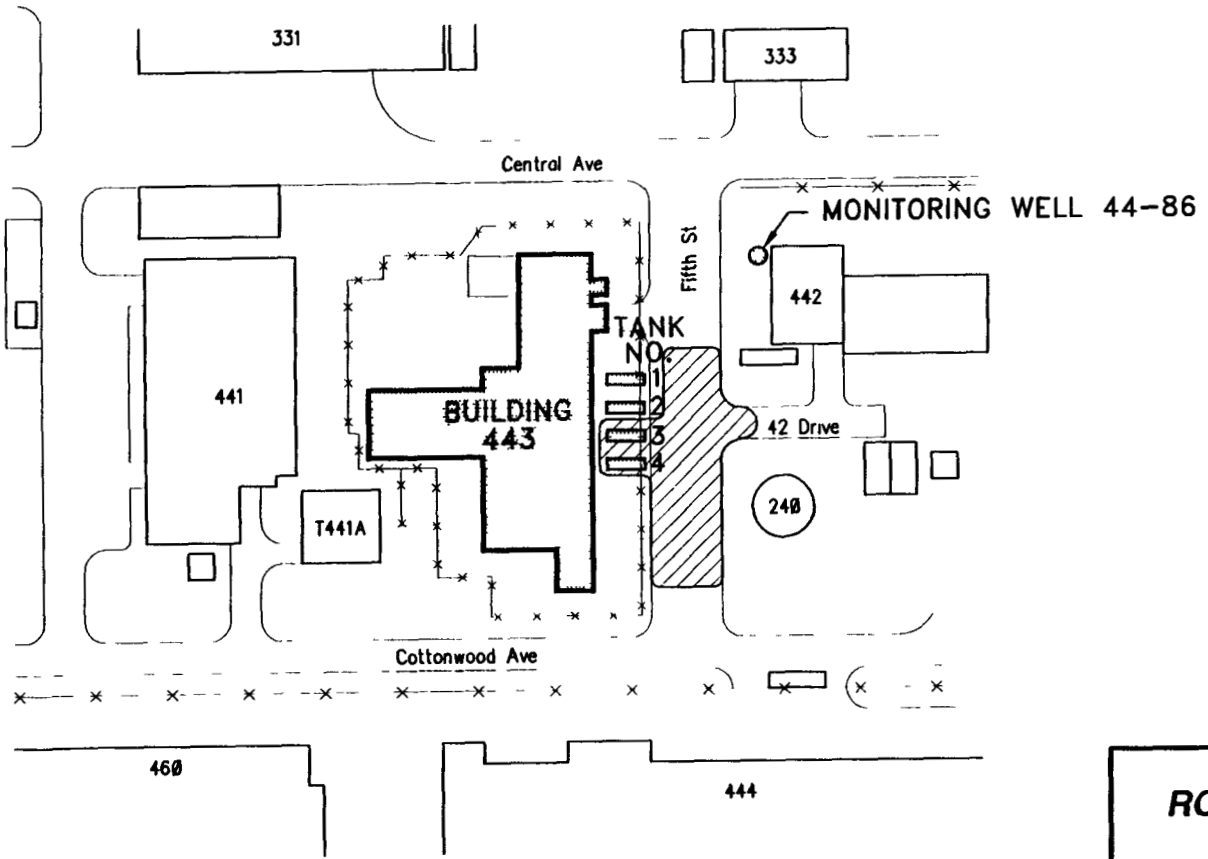

LEGEND:

Fence

Proposed Area of Concern

N

Scale (Approx)

Ø 200 feet

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

FIGURE 1-2
PROPOSED AREA OF CONCERN

DATE 09/30/94	DR GFD	CKD TJW
SCALE APPROXIMATE	DWG NO 05397-54	

This action is considered a removal action under The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300 415), and an accelerated action pursuant to a letter dated June 23, 1994 from Steven W Slaten, Interagency Agreement (IAG) Project Coordinator for the DOE to Martin Hestmark, U.S. Environmental Protection Agency Region VIII (EPA), and Gary Baughman, Department of Public Health and the Environment (CDPHE) (Slaten, 1994) This removal action is being conducted as an accelerated response action because the contaminants of concern inside the tanks (both are suspected to be breached) may contain RCRA hazardous constituents and pose a potential threat to human health and the environment as contaminant sources The removal action can be implemented within six months

This PAM has been prepared in accordance with the above referenced letter (Slaten, 1994) and the proposed amendment Paragraph I B 10 of Attachment 2 to the IAG As indicated in proposed language, this action is consistent with CERCLA, RCRA, and the Colorado Hazardous Waste ACT (CHWA) Paragraph I B 10 b lists the elements a PAM should contain. This includes (1) a brief summary of the data for the site, (2) an explanation of the proposed action, (3) waste management considerations, (4) a brief explanation of how the proposed action is consistent with any long-term remedial action objectives; and (5) an implementation schedule with a completion date Paragraph I B 10 b further stipulates that, if appropriate, the PAM shall also contain a brief summary of risks, and/or proposed performance standards, and identify all Applicable or Relevant and Appropriate Requirements (ARARs) specifically related to the proposed action Each of these elements is incorporated into the PAM A description of each section of the PAM, including the appropriate element contained in the section areas follows

- Section 2 0 Site Background - presents a brief summary of the known data for the site
- Section 3 0 Potential Risks to Public Health and the Environment - contains a brief summary of potential risks which the Accelerated Response is intended to mitigate
- Section 4 0 Proposed Action - includes an explanation of the proposed action, provides a brief summary of ARARs and performance standards, explains consistency with long-term objectives, addresses waste management considerations, and presents an implementation schedule and approximate completion date
- Section 5 0 Expected Change in the Situation Should the Action be Delayed or Not Taken - describes the potential results of taking no action
- Section 6 0 References - provides a list of reference documents used to prepare the PAM

2.0 SITE BACKGROUND

RFETS is a government-owned, contractor operated facility that is part of the nationwide DOE nuclear weapons complex Until January 1992, RFETS was operated as a nuclear weapons research, development, and production complex RFETS fabricated nuclear weapons components from plutonium, uranium, beryllium, and stainless steel Support activities included chemical recovery, purification of recyclable transuranic radionuclides, and research and development of metallurgy, machining, nondestructive testing, coatings, remote engineering, chemistry, and physics RFETS is also currently designated a RCRA hazardous waste treatment/storage facility RFETS is in transition from a defense production facility to a facility that will be used for such future missions as environmental restoration, waste management, and eventual decontamination and decommissioning

The IAG, signed by DOE, EPA, and CDPHE in 1991, grouped IHSSs at RFETS into 16 OUs The IAG requires the investigation, study, and remediation of OU10 as well as the other OUs at RFETS The IAG is currently under revision and renegotiation among DOE, EPA, and CDPHE The future document resulting from these renegotiations is called the Rocky Flats Cleanup Agreement (RFCA)

2.1 SITE DESCRIPTION

OU10, titled Other Building Closures, is one of six OUs included in the Industrial Area (IA). IHSS 129, Building 443 #4 Fuel Oil Tank, is 1 of 16 IHSSs in OU10 and 1 of 4 fuel oil tanks (Figure 2-1) historically used to supply No 6 fuel oil to the Building 443 steam plant boilers The Building 443 steam plant provides heat to other buildings at RFETS These tanks were used originally as the primary fuel supply to the steam plant boilers and later were used as

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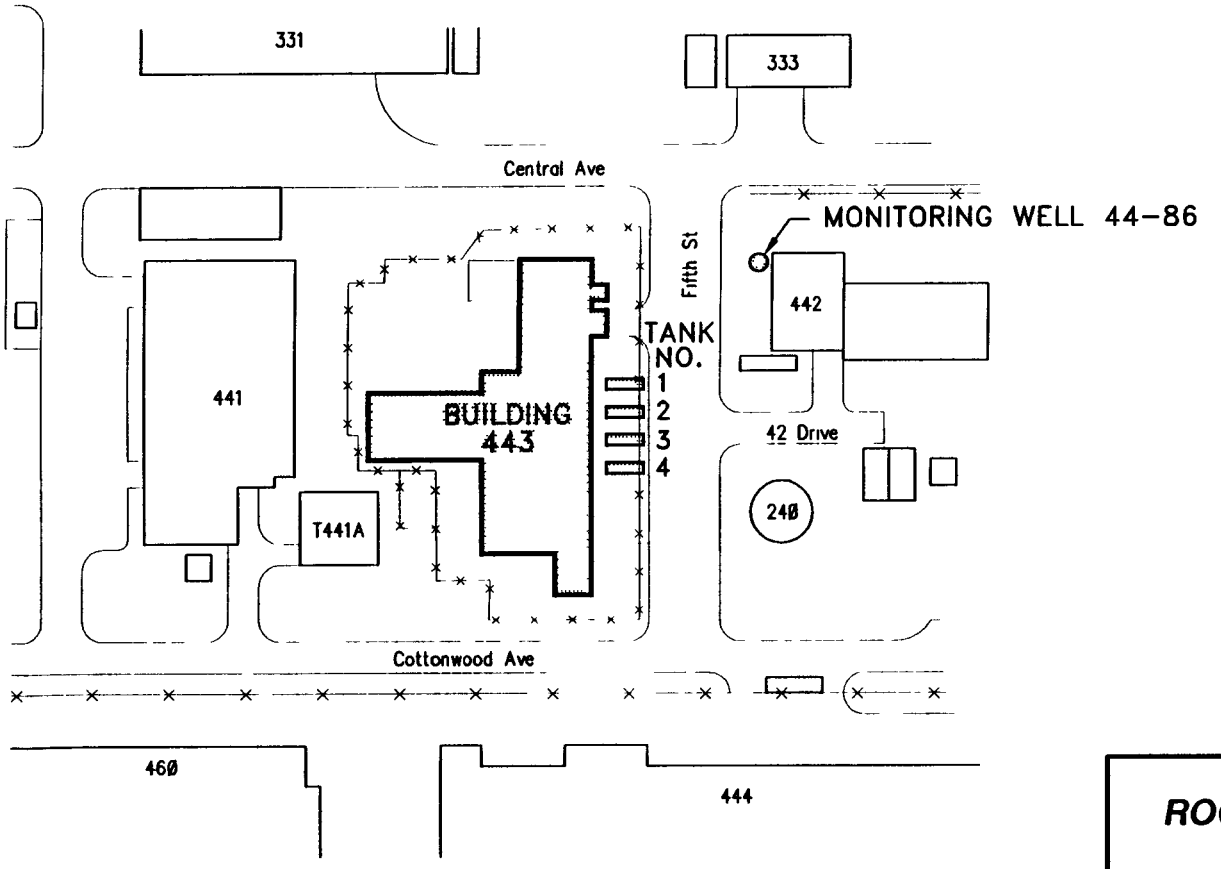

LEGEND:

Fence

N

Scale (Approx)

Ø 200 feet

U S. DEPARTMENT OF ENERGY

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

FIGURE 2-1
BUILDING 443 TANK LOCATION DETAIL MAP

DATE 08/31/94	DR GFD	CKD TJW
SCALE APPROXIMATE	DWG NO 05397-46	

a backup system in the event of a natural gas loss The tanks are located approximately 25 feet east of the building in the southwest quadrant of the IA Tank #3 is adjacent to and just north of Tank #4 The tanks are oriented longitudinally in an east-west direction (Figure 2-2) Tanks #1 and #2 were installed in 1952 Tanks #3 and #4 were installed in 1967 The tanks are constructed of carbon steel and are 11 feet in diameter by 27 feet long with a total storage capacity of approximately 19,000 gallons each The top of Tank #4 is approximately four feet BGS The top of Tank #3 is an unspecified depth BGS, but is believed to be four feet BGS (DOE, 1992a)

Five pipelines, believed to be partially wrapped in asbestos, are connected with Tanks #3 and #4 Four steel supply and return lines connect each of the four tanks to Building 443. These four lines consist of a steam line to supply the heaters located inside each tank, a return condensation line from the heaters, a line to pump fuel oil to Building 443, and a return line for oil being circulated from the Building 443 boilers An additional aboveground line connects two supply tanks south of Building 551 to the four tanks The portion of this line that is connected to Tank #4 is an aboveground steel pipe (DOE, 1992a)

2.2 PHYSICAL LOCATION AND LAND USE

The population, economics, and land use of the areas surrounding RFETS are described in a 1989 vicinity demographics report by DOE (DOE, 1990) This report divides general use of areas within 0 to 10 miles (0 to 16 kilometers [km]) of RFETS into residential, commercial, industrial, parks and open spaces, agricultural and vacant, and institutional classifications, and considers current and future land use near RFETS

The majority of residential use within 5 miles (8 km) of RFETS is located immediately north and southwest of Standley Lake Single-family dwellings are located in unincorporated areas immediately east and south of RFETS Commercial development is concentrated near the

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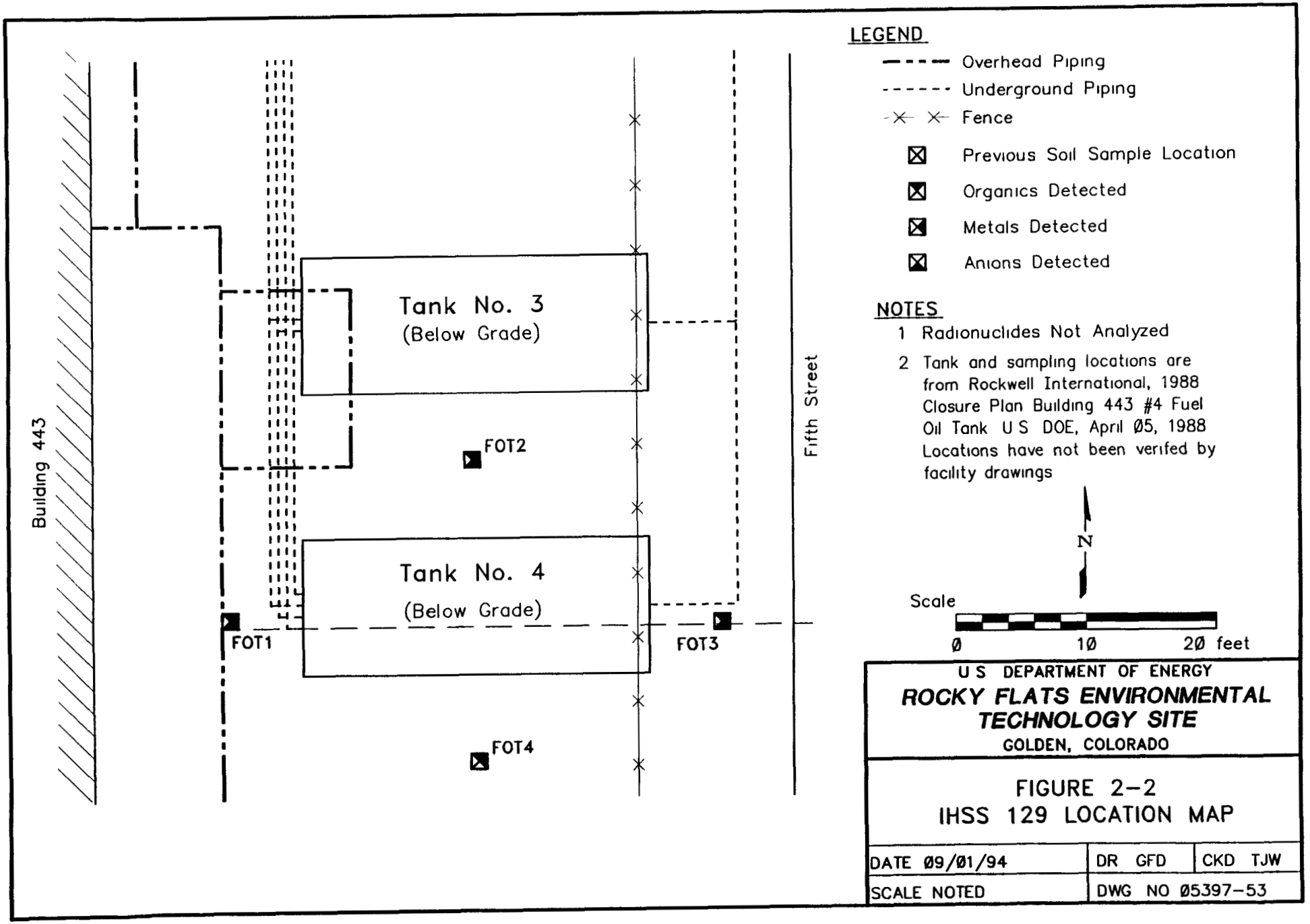
Building 443
Tank No. 3
(Below Grade)
Tank No. 4
(Below Grade)
FOT1
FOT2
FOT3
FOT4
Fifth Street
LEGEND
Overhead Piping
Underground Piping
Fence
Previous Soil Sample Location
Organics Detected
Metals Detected
Anions Detected
NOTES
1 Radionuclides Not Analyzed
2 Tank and sampling locations are from Rockwell International, 1988 Closure Plan Building 443 #4 Fuel Oil Tank U S DOE, April 05, 1988 Locations have not been verifed by facility drawings
N
Scale
0
10
20 feet
U S DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
GOLDEN, COLORADO
FIGURE 2-2
IHSS 129 LOCATION MAP
DATE 09/01/94
DR GFD
CKD TJW
SCALE NOTED
DWG NO 05397-53

residential developments north and southwest of Standley Lake, and around the Jefferson County Airport approximately 3 miles (4 8 km) northeast of RFETS Industrial land use within 5 miles (8 km) of the plant is limited to quarrying and mining operations Open space land is located northeast of RFETs near the city of Broomfield, and in small parcels adjoining major drainages and small neighborhood parks in the cities of Westminster and Arvada Standley Lake is surrounded by Standley Lake Park Irrigated and non-irrigated croplands, producing primarily wheat and barley, are located northeast of RFETS near the cities of Broomfield, Lafayette, and Louisville, north of the RFETs near Louisville and Boulder, and in scattered parcels adjacent to the eastern boundary of the plant Several horse operations and small hay fields are located south of the RFETS The demographics report characterizes much of the vacant land adjacent to RFETS and the reservoirs as rangeland (DOE, 1990)

Future land use in the vicinity of RFETS most likely involves continued suburban expansion, increasing the density of residential, commercial, and perhaps industrial land use in the areas The expected trend in population growth in the vicinity of RFETS is addressed in the DOE demographics study

2.3 PHYSICAL ENVIRONMENT AND ECOLOGY

The land surface in the vicinity of IHSS 129 slopes gently to the northeast Ground water occurs in unconfined conditions in alluvial deposits varying up to 50 feet thick under the secured area, including IHSS 129 Based upon data collected from Well 44-86 (Figure 2-1), the depth-to-water varies seasonally from approximately 3 5 to 10 feet BGS and at times may be up to 20 feet BGS In August 1994, the depth-to-water in Well 44-86 was measured at 7.6 feet BGS

The alluvial deposit, the Rocky Flats Alluvium, is composed of poorly sorted, coarse, bouldery gravel in a sand matrix with lenses of clay, silt, and sand Bedrock, the Arapahoe Formation, underlies the alluvium and is composed of sandstones and claystones

The physical environment in the vicinity of IHSS 129 consists of gravel with sporadic patches of weeds growing through the gravel Although wetlands and surface water features occur within OU10, there are no floodplains or wetlands at or near IHSS 129 In addition, no endangered wildlife species will be affected by the removal of Tanks #3 and #4

2.4 RELEASE INTO THE ENVIRONMENT OF A HAZARDOUS SUBSTANCE, POLLUTANT, OR CONTAMINANT

The following sections provide a summary of the materials historically stored in Tanks #3 and #4, the reported releases from the tanks, and the investigation of the contaminated media More detailed information is provided in the OU10 Work Plan (DOE, 1992a)

2.4.1 Materials Stored in Building 443 Tanks #3 and #4

Tank #3 stored No 6 fuel oil from 1967 until 1991 when the heating coil malfunctioned There is no documentation that Tank #3 was used to store any substance other than No 6 fuel oil However, OU10 personnel have suggested that historical pumping between Tanks #4 and #3 may have occurred Therefore, until sampling and analysis of the contents of Tank #3 determine otherwise, Tank #3 may contain RCRA hazardous constituents (Rockwell, 1988) (DOE, 1992a)

Between 1967 and 1984, Tank #4 primarily stored No 6 fuel oil, but also held diesel oil and a mixture of water and compressor oil During the 1970s, Tank #4 was used to store a total of approximately 19,000 gallons of No 2 diesel oil over the course of several years From 1984 to 1986 Tank #4 was used to store a mixture of water and compressor oil The mixture was placed in the tank at a rate of approximately 30 gallons per day Solvents used to clean equipment and for cleaning up fuel oil spills were also added to Tank #4 at various times from 1967 to 1986 Approximately 55 gallons of solvents were used in Building 443 every two

years, which represents a total of approximately 520 gallons of solvents which could have been placed in Tank #4

On September 28, 1994, measurements were collected from the contents of Tanks #3 and #4 Tank #3 contained 21 gallons of oil-phase liquids, 10,707 gallons of water-phase material, and 7,300 gallons of sludge Tank #4 held no oil-phase liquid, 9,040 gallons of water-phase liquid, and 311 gallons of sludge The water-phase liquid in Tank #3 originated from steam condensate and/or from water entering through a breach in the tank Tank #4's water-phase material is believed to entered through a breach in the tank, although the exact location of the hole is unknown (DOE, 1992a)

2.4.2 Historical Discovery of Contaminated Media

On March 6, 1986, a four-foot deep fence post hole excavated approximately six inches east of the eastern edge of Tank #4 partially filled with a material with the appearance of compressor oil On March 9, 1986, No 6 fuel oil was discovered in another fence post hole nearby (DOE, 1992b) As a result of these observations, the use of Tank #4 was discontinued Approximately 12,900 gallons of material was subsequently removed from the tank

2.4.3 Previous Investigation of Contaminated Media

Following the observation of material in the fence post hole east of Tank #4, a trench approximately 3 feet wide by 4 feet deep by 100 feet long was excavated approximately 3 to 4 feet east of the four fuel oil tanks Dark fuel oil stains were observed in the southernmost 30 feet of the trench immediately east of Tank #4 No free product was observed in the trench The trench was subsequently backfilled

Samples of the material stored in Tank #4 and the material that appeared in the fence post hole east of Tank #4 were collected and analyzed for VOCs and TPH Samples from Tank #4 were collected from the oil-phase and the water-phase material in the tank Results of the analysis by an independent off-site laboratory are provided in Table 2-1 and indicate the presence of VOCs The VOCs and their respective concentrations (oil-phase/water-phase contents of the tank) in milligrams per liter (mg/L) are

- 1,1,1,-trichloroethane (TCA), 17,000/40,
- methylene chloride (MeCl), 140/25, and
- trichlorofluoromethane (TCFM) below detection limit/17

TABLE 2-1

Summary of Off-Site Laboratory Analyses: Samples of Contents of Tank #4 and Liquid in the Fence Post Hole in IHSS 129 Collected on March 7, 1986

CONSTITUENT	OIL-PHASE LIQUID FROM TANK #4 (mg/L)	WATER-PHASE LIQUID FROM TANK #4 (mg/L)	MATERIAL OBSERVED IN THE FENCE POST HOLE (mg/L)
Methylene Chloride	140	25	14
1,1,1,-Trichloroethane	17,000	40	32
Trichlorofluoromethane	<5	17	29

Source Rockwell (1988)

The VOCs and their respective concentrations in the fence post hole are

- TCA at 32 mg/L;
- MeCl at 14 mg/L, and
- TCFM at 29 mg/L.

It is unknown as to how many samples were collected for off-site laboratory analysis Two samples from each of the oil-phase and water-phase contents of Tank #4 were also analyzed at an on-site laboratory On-site laboratory analysis indicates the presence of TCA in the oil-phase liquid at levels of 58 and 65 mg/L, and in the water-phase liquid at 10 7 and 27 5 mg/L On-site laboratory analysis also detected trichloroethene (TCE) in the water-phase liquid at trace level (less than 10 micrograms per liter [µg/L] and at 25 µg/L) (Rockwell, 1988)

In 1988, 4 soil borings were drilled reportedly to a depth of either 10 feet below the water table or to a maximum depth of 30 feet BGS, whichever level was reached first Samples for laboratory analysis were collected at five-foot intervals The actual depth of these borings and sampling points was not identified (Rockwell, 1988) The locations of the soil borings are presented on Figure 2-2 as FOT1 through FOT4 Results of the soil sample analyses are presented on Table 2-2 and indicated the presence of VOCs and metals above detection limits Organics detected and their respective highest concentrations included

- TCA at 340 µg/kilogram (kg),
- MeCl at 1,100 µg/kg,
- benzene at 570 µg/kg,
- toluene at 1,700 µg/kg;
- ethylbenzene at 1,600 µg/kg, and
- total xylenes at 4,700 µg/kg

Except for TCA, the highest concentrations of VOCs were detected in FOT3 TCA was only detected in FOT2. Although it is unlikely that metals originated from the tanks, their respective highest concentrations are as follows:

- aluminum (9,300 mg/kg),
- beryllium (1 3 mg/kg),
- cadmium (3 6 mg/kg),
- copper (9 6 mg/kg),
- mercury (0 45 mg/kg),
- manganese (110 mg/kg),
- potassium (1,100 mg/kg),
- vanadium (23 mg/kg), and
- arsenic (2.4 mg/kg),
- calcium (4,900 mg/kg),
- chromium (8 4 mg/kg),
- iron (12,000 mg/kg),
- magnesium (1,800 mg/kg),
- nickel (19 mg/kg),
- lead (570 mg/kg),
- zinc (30 mg/kg)

The data presented in Tables 2-1 and 2-2 indicate that Tank #4 is a source of contaminants to the subsurface environment

Between November 1986 and December 1987 ground water samples were collected from Well 44-86 (Figure 2-1), hydraulically cross-gradient from the tanks, and analyzed for TCA, TCE, and MeCl TCA was not detected in three out of five samples In one sample, TCA was found above the detection limit, but greater than one order of magnitude lower than the maximum contaminant level of 0 2 mg/L. In the other sample, TCA was found at a concentration less than the analytical detection limit (Rockwell, 1988) TCE was not detected in any of the samples MeCl was not detected in one of the two samples analyzed MeCl was found at a concentration less than the analytical detection limit and was also detected in a blank The presence of other contaminants in ground water from Well 44-86 (1,1-dichloroethene, tetrachloroethene, and chloroform) may be indicative of a contamination source other than Tank #4 (Rockwell, 1988)

TABLE 2-2
Summary of IHSS 129 Soil Sampling Activities Conducted in 1988

Constituent	Concentration Range at Soil Borehole Locations			
	FOT1	FOT2	FOT3	FOT4
VOCs and Semi-VOCs(µg/kg)				
Methylene chloride	4 0J, 14B	65J, 430	1100	57J, 60J
Acetone	18			370J
1,1,1-Trichloroethane		340		
Benzene	3 0J, 5 0J		570	78J, 180J
Toluene	10, 11	71J, 180J	1700	170J, 320
Ethylbenzene	33, 40	140J, 200J	1600	360, 490
Total Xylenes	35, 42	330, 1500	4700	2000, 3000
2-Methylnaphthalene	7800J			
Pyrene	7100J			
Benzo(a)anthracene	3600J			
Chrysene	8100J			
Metals and Other Inorganics (mg/kg)				
Aluminum	8100	3900	9300	3500
Arsenic			2 4	
Beryllium	1 3			
Calcium	4900	3200	1700	
Cadmium	3 6	1 5	3 4	
Chromium	8 4	6 8		4 3
Copper	12	6 4	9 6	

TABLE 2-2 (Continued)

Summary of IHSS 129 Soil Sampling Activities Conducted in 1988

Constituent	Concentration Range at Soil Borehole Locations			
	FOT1	FOT2	FOT3	FOT4
Metals and Other Inorganics (mg/kg), Continued				
Iron	12000	6200	9100	3700
Lead	14	4 8	38	570
Mercury	0 47	0 45	0 28	0 18
Magnesium	1800		1300	
Manganese	110	67	88	42
Nickel	19		8 7	
Potassium	1100			
Vanadium	23	16	22	
Zinc	30	13	20	16

Notes 1 - Locations provided on Figure 2-2
J - Present below detection limit
B - Present in blanks
Data not validated

SOURCE DOE, 1992 Final Phase I RFI/RI Work Plan, Rocky Flats Plant, Other Outside Closures (Operable Unit 10) Volume II - Appendix C May 1992

2.4.4 Historical Releases to the Environment

There are documented increases in the level of material in Tank #4 due to ground water entering through a suspected breach in the tank The breach, along with spills associated

with overfilling any and all of the tanks throughout their history, is a source of contamination to the subsurface The amount of fuel oil released by these spills is unknown (Rockwell, 1988)

In November 1977, a leak in an underground transfer pipe near Tank #4 was discovered when approximately 600 gallons of No 6 fuel oil was recovered from the sewage treatment plant The total amount of oil released is unknown The oil-contaminated soil encountered during excavation to repair the pipe was disposed in the RFETS sanitary landfill (Rockwell, 1988)

On February 6, 1989, the level indicator in either Tanks #1 or #2 failed while the tank was being filled (it is unknown as to which tank it was) Approximately 500 gallons of No 6 fuel oil were released to the immediate area and the street On February 10, 1989, 50 gallons were released because valves were left open On July 29 and 30, 1989, 1,700 gallons were released to the environment Documentation detailing the cause of this release was not found (DOE, 1992b)

2.4.5 Potential for Contaminant Migration

The potential for contaminant migration remains high due to (1) the presence of two underground tanks suspected to be breached, (2) the probability that water in Tank #4 has been impacted by sludge in the tank, (3) the presence of oil-phase material remaining in Tank #3, (4) the possibility that Tank #3 may be breached due to its age and the presence of water in the tank, (5) the potential that historical cross-pumping between Tanks #3 and #4 has occurred, and (6) Tank #4, a suspected breached tank, may develop additional leaks. Because of the fluctuating water table and the fact that the tank tops are four feet BGS, ground water can continue to enter the tanks, become contaminated, and subsequently exit the tank into the subsurface

2.5 NATIONAL PRIORITIES LIST (NPL) STATUS

RFETS was proposed for inclusion on the NPL on October 15, 1984, pursuant to Section 105 of CERCLA, 42 USC §9605, and became final on September 21, 1989 Accelerated Removal Actions are being planned pursuant to the draft revised 1994 IAG and 40 CFR 300 415 of the NCP

2.6 OTHER ACTIONS TO DATE

This section presents the previous, current, and future actions for Tanks #3 and #4 The previous actions are only briefly summarized here, since they were described above in Section 2 4

2.6.1 Previous Actions

Previous actions at the site resulted from the discovery of oil-like material in the fence post holes excavated near Tank #4 in 1986 These actions included (1) taking Tank #4 out of service; (2) removing the contents of Tank #4; (3) excavating an observation trench east of and adjacent to the four tanks; (4) drilling four boreholes around the perimeter of Tank #4, (5) collecting and analyzing soil samples from each of the boreholes, and (6) collecting and analyzing samples of the material in Tank #4

2.6.2 Current Actions

Currently, an EG&G subcontractor is conducting surficial soil sampling at IHSS 129 The scope of work for the surficial soil sampling program is defined in the approved Final Phase I RFI/RI Work Plan for OU10 (DOE, 1992)

2.6.3 Future Actions

Future actions include (1) conducting subsurface soil sampling to better define the extent of contamination, (2) completing the tank removal action (described below in Section 4 0), and (3) incorporating the results of the removal action into the Phase I RFI/RI for OU10 The Sampling and Analysis Plan for conducting the subsurface and post-excavation soil sampling will be submitted under separate cover in accordance with PAM implementation schedule provided in Attachment 1

2.7 FEDERAL, STATE, AND LOCAL AGENCIES ROLE

The EPA, CDPHE, and local agencies have oversight and enforcement authority under RCRA and CERCLA The main vehicle by which this authority is implemented is through the IAG, its proposed amendments, and the RFCA (in the future) The CDPHE recommends that this removal action be completed The EPA and CDPHE have provided suggestions for developing this PAM

3.0 POTENTIAL RISKS TO PUBLIC HEALTH AND ENVIRONMENT

Actual or threatened releases of VOCs, semi-VOCs, and TPH present in the subsurface soil in the vicinity of the tanks, if not addressed by implementing the removal action, present a potential risk to public health, welfare, or the environment as defined in the NCP In addition, the high potential for continued contaminant migration to the subsurface environment poses further potential risks to human and environmental receptors

Future activities associated with the removal action may cause physical hazards These hazards include cave-in and physical obstruction to excavation and construction associated with the tanks, miscellaneous piping, metal straps, and ancillary equipment

4.0 PROPOSED ACTION

This section provides a description of the proposed removal action, its technical feasibility and implementability, ARARs, performance standards, consistency with long-term remedial objectives, waste management considerations, PAM implementation schedule, and PAM completion date

4.1 PROJECT DESCRIPTION

The proposed removal action includes (1) subsurface soil sampling to better define the extent of contamination, (2) excavation of both tanks, piping, fixtures, concrete pad, metal strapping and ancillary equipment, (3) containerization of encountered water, (4) return all soil to the excavation to be remediated, if necessary, under the final ROD for the IHSS, (5) decontamination and packaging of the tanks and support materials, (6) and final disposition of the tanks, piping, metal straps, ancillary equipment, tanks contents, and water associated with this project The concrete pads will be left in place, and all excavated soil will be returned to its original location The soil will be remediated, if necessary, under the ROD remedy for the IHSS (EPA, 1989) This removal action will be accomplished in two phases· the pre-construction phase and the construction phase These two phases are discussed in detail below

4.1.1 Preconstruction Phase Activities

Activities in the pre-construction phase consist of (1) conducting screening for radionuclide contamination to provide safety for workers conducting the removal action; (2) completing subsurface soil sampling to better define the extent of contamination, (3) sampling and analyzing the contents of both tanks, and (4) obtaining, preparing, and submitting all required CDPHE/RFETS notifications and permits pertaining to this project As indicated above in

Section 2 6 3, the details of the soil sampling activities will be described in a Sampling and Analysis Plan, currently under development

4.1.2 Construction Phase Activities

The construction phase of the proposed removal action is technically feasible, easily implementable, and includes the following tasks

- construction of a temporary security fence around the perimeter of the excavation for the safety of non-construction personnel,
- removal and containerization of the oil-phase, water-phase and sludge contents of the tanks,
- excavation of the soil to expose the tanks, associated pipelines, ancillary equipment, and supporting materials making every effort to segregate the clean soil from that which may be contaminated, and map out the soil as it is removed so that it can be returned to its original location to be remediated (if necessary) under the IHSS ROD,
- field screen the soil and water in the excavation for the presence of VOCs using a photoionizator detector (e g , HNu),
- containerization of all water encountered in the excavation, decon water, and tanks' contents,
- removal of the excavated soil and temporarily putting it in 35 cubic yard roll-off containers;

- on-site decontamination and packaging of the tanks and metal straps for off-site recycling or disposal depending upon which alterative is more feasible and cost-effective,

- on-site decontamination of equipment and workers;

- off-site recycling of the sludge and oil-phase contents of the tanks;

- on-site treatment of the water-phase contents of the tank and the tank/pipe decon water by an oil/water separator and granular activated carbon disposal at the Building 374 Evaporator,

- on-site treatment of the water encountered in the excavation at the OU2 treatment plant,

- on-site disposal of the equipment and worker decon water at the OU2 Decon Pad,

- on-site packaging of the asbestos, miscellaneous piping, ancillary equipment, and other construction waste for off-site disposal at an approved facility;

- leaving the concrete pads (used to ballast the tanks) *in-situ* to be addressed as part of OU10 RFI/RI activities,

- collecting post-excavation soil samples from the sidewalls of the excavation, from underneath the tanks (or one foot above the water table if present in the excavation), and where pipes have been removed, and

- reclaiming the site to its prior condition

All removal action work will be conducted according to Occupational Safety and Health Administration (OSHA) requirements and according to approved industry standards as applicable Fugitive dust emissions will be mitigated during the tanks' excavation and removal

Uncertainty about the subsurface conditions will be reduced upon completion of screening and soil sampling activities Field decisions may be made as to the lateral and vertical extent of the excavation if unanticipated field conditions occur which alter the scope of work proposed in this PAM and other documents that will be prepared as part of implementing this PAM These field decisions will be made in consultation with DOE Appropriate EPA and CDPHE staff will be verbally notified if field conditions warrant scope changes

Excavation activities require constructing temporary supports and shoring for the excavation, removing water entering the excavation, relocating utilities and infrastructure items (i e , electrical conduits, fences and sidewalks), and capping and/or rerouting steam and other pipes associated with Tanks #1 and #2 The approximate extent of the excavation is provided in Figure 4-1 The lateral extent of the excavation will be 40 feet in the north-south direction (parallel to the Building 443 and Fifth Avenue) and 30 feet in the east-west direction. The vertical extent of the excavation will be 15 feet BGS, which is below the water table The excavation is anticipated to be 40 feet long, 30 feet wide, and 15 feet deep

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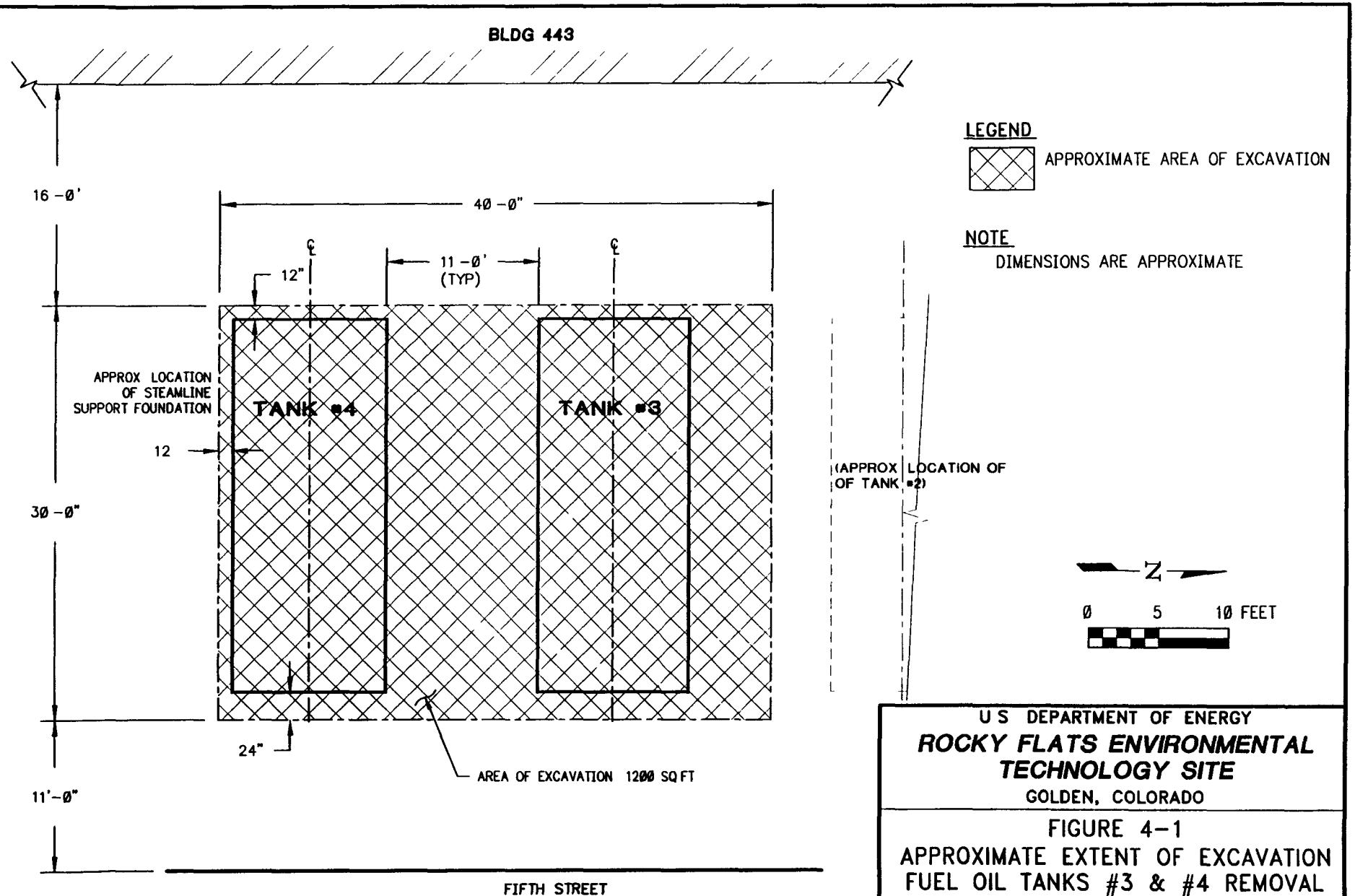


U S DEPARTMENT OF ENERGY

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

FIGURE 4-1

APPROXIMATE EXTENT OF EXCAVATION

FUEL OIL TANKS #3 & #4 REMOVAL

DATE Ø9/Ø8/94	DR GFD	CKD TJW
SCALE 1"=1Ø'-Ø"	DWG NO Ø5397-52	

Post-excavation sampling will be conducted as follows Three soil samples will be collected from underneath each tank, one from each end, and one from the middle of the tank. Soil samples will be collected every 50 feet along the excavated pipes and near fittings and joints based on visual inspection One sample will be collected from each of the four excavation walls The samples will be obtained from either three feet above the bottom of the excavation or from one foot above the water table, if present, in the excavation At least two samples of water entering the excavations will be collected and analyzed

Reclamation activities will include (1) returning the soils to their original location in the excavation, (2) covering the soil with clean fill to bring the excavation back to natural grade; (3) covering the excavation with geotextile fabric and gravel; and (4) replacing all utilities and infrastructure items, including steam lines and pipes associated with Tanks #1 and #2, to their original operating condition

4.1.3 Technical Feasibility and Implementability

The proposed action is technically feasible and easily implementable. The proposed action utilizes industry accepted and well-understood technologies for excavation, containerization, treatment, and final disposition of all of the items associated with the removal action. The proposed action will be completed by a fixed-price subcontractor with sufficient training to accomplish the removal action Successful implementation relies on standard excavating equipment, transporting vehicles, and readily available materials and supplies It assumes that no radionuclides are detected above background in the field screening or subsurface sampling activities

4.3 Applicable or Relevant and Appropriate Requirements (ARARs) and Performance Standards

This removal action consists of the removal of two tanks, piping, metal straps, and ancillary equipment The removal action is a source-term removal and does not address ground water issues, therefore, surface and ground water standards will not be discussed in this section The action will meet all ARARs and will be in compliance with the National Environmental Policy Act (NEPA) The following section presents a brief summary of the definition of ARARs in addition to current promulgated regulatory standards that may be applicable or relevant and appropriate to this removal action

"Applicable" requirements are those cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant or contaminant, remedial action, location, or other circumstance at a remedial action site "Relevant and appropriate" requirements are cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not "applicable", address problems or situations sufficiently similar to those encountered at the site so that their use is well-suited to the particular site ARARs are *chemical-specific, action-specific, or location-specific*

Chemical-specific ARARs are those which set concentration limits for individual chemicals for air emissions and soil standards There are no chemical-specific ARARs for tank removals.

Action-specific ARARs apply to the use of specific technologies and practices such as excavation, surface impoundment or landfilling of hazardous waste The Federal and Colorado action-specific ARARs determined to be practicable for this removal action include: (1) the Occupational Safety and Health Act (29 U S C §§ 651 et seq. and 29 CFR §§ 1900 et

seq), (2) the Atomic Energy Act (42 U S C § 2210 et seq and 10 CFR §§ 20 et seq) for protecting worker health and safety during implementation, (3) the CHWA (CRS §§ 25-15-101 to -313 and 6 CCR §§ 1007-2 and -3) for managing hazardous waste, and (4) the Colorado Air Quality Control Act (CRS §§ 25-7-101 to -609 and 5 CCR §§ 1001-3, -5, -8, -10) for controlling air emissions. In addition, the action will be in compliance with applicable DOE Orders

Finally, location-specific ARARs relate to activities that are restricted from occurring in certain areas such as flood plains or wetlands No ARARs were identified for this removal action

With respect to NEPA compliance, the RFETS NEPA Compliance Committee must review the removal action request for a categorical exclusion and the completed environmental checklist review form Afterwards, they must determine whether further NEPA documentation requirements are necessary

Performance standards are intended to provide a measure with which to validate whether the intent of a proposed action has been accomplished and, in effect, establish an action goal Performance standards are not intended to delineate how an action is to be staged or carried out The performance standard for the removal of Tanks #3 and #4 shall include (1) remove the tanks, (2) remove physical hazards associated with the presence of the tanks, piping, and ancillary equipment, and (3) protect workers from chemical and physical hazards in accordance with OSHA standards

Source-term removal will require removal of contaminant sources attributable to Tanks #3 and #4 which are sources of environmental contamination Physical hazard removal will be accomplished when both tanks, piping appurtenances, concrete support materials, and metal strapping have been removed off-site, and the excavation shoring is removed or properly left in place

Worker protection will be achieved through sufficient precautions being taken to prevent worker exposures to contamination levels exceeding OSHA/National Institute of Occupational Safety and Health (NIOSH) Short-Term Exposure Limits for site contaminants Meeting this standard will require air monitoring and personal protective equipment used in accordance with the PAM Health and Safety Plan, currently under preparation

4.2 Consistency with Long-Term Remedial Objectives

The proposed removal action is consistent with long-term remedial objectives for OU10 The removal action will permanently reduce risk to human and ecological receptors, contamination in the subsurface, and the potential for contaminant migration Specifically, characterizing and removing the source-term contamination resulting from this removal action supports the long-term remediation objectives for RFETS and will provide potentially important data for further evaluation of the IHSS and for the baseline risk assessment, an objective of the OU10 Phase I RFI/RI However, as noted above, this source-term removal does not constitute the final remedy for the site

4.3 Waste Management

The management of waste generated by this proposed removal action is an important consideration The waste generated from this proposed removal action does not contain radionuclide constituents above background levels Waste to be managed includes the contents of the tanks, decon water, water encountered in the excavation, the tanks, miscellaneous pipes, ancillary equipment, metal straps, and other construction waste

The contents of Tank #4 consist of 9,040 gallons of water-phase liquids containing petroleum products, 311 gallons of sludge, and RCRA hazardous constituents The contents of Tank #3 contains 21 gallons of oil-phase liquid, 10,707 gallons of water-phase material, and 7,300

gallons of sludge The sludge and oil-phase contents of the tanks will be sent off-site for recycling The water-phase contents of the tanks, as well as the tank/pipe decon water, will be treated on-site using an oil/water separator and granular activated carbon and will be disposed of at the Building 374 Evaporator The equipment and worker decon water will be treated at the OU2 Decon Pad The water encountered in the excavation will be sent to the OU2 treatment plant

Subsequent to decontamination, the tanks and metal straps will be packaged and sent off-site for recycling or appropriate disposal depending on which alternative is most feasible and cost-effective The miscellaneous piping, asbestos, ancillary equipment, and other construction waste will be packaged appropriately for off-site disposal at an approved facility All packaging, containers, and transportation of materials will be completed in accordance with the Colorado and U S Department of Transportation (DOT) requirements

4.4 Implementation Schedule and Completion Date

The implementation schedule for the PAM is provided in Attachment 1. The removal action is expected to begin with the agency approval of this PAM in December 1994, and subsequent project authorization by DOE in March 1995 A fixed-price contract will be awarded in April or May 1995 Mobilization will begin in June 1995 and construction will initiate in June 1995. The project is estimated to be completed in August 1995 A final Completion Report will be prepared in September or October 1995

5.0 EXPECTED CHANGE IN THE SITUATION SHOULD THE ACTION BE DELAYED OR NOT TAKEN

If the tanks are not removed according to this PAM, it is anticipated that the contents of Tank #4 will continue to contaminate the surrounding soil and migrate into the environment. The potential exists for Tank #3, also suspected to be breached, to result in a scenario similar as for Tank #4 Additionally, the nature and extent of contamination under Tank #4 is unknown and cannot be determined until the tank is removed

6.0 REFERENCES

CDPHE, 1994 Storage Tank Facility Owner/Operator Guidance Documents Colorado Department of Health, Hazardous Materials and Waste Management Division April 15, 1994

DOE, 1990. Population, Economic, and Land Use Database for the Rocky Flats Plant Golden, Colorado August 1990

DOE, 1992a Final Phase I RFI/RI Work Plan, Rocky Flats Plant Other Outside Closures (Operable Unit No 10) Volume I - Text, and Volume II - Appendices Golden, Colorado May 1992

DOE, 199b Final Historical Release Report for the Rocky Flats Plant Volume I - Text, and Volume II - Appendices Golden, Colorado June 1992

DOE, 1994. Programmatic Risk-Based Preliminary Remediation Goals U S Department of Energy, Rocky Flats Plant, Golden, Colorado July 1994

EPA, 1989 Superfund LDR Guide #5, Determining When Land Disposal Restrictions (LDRs) are Applicable to CERCLA Response Actions U S Environmental Protection Agency, Office of Solid Waste and Emergency Response Directive 9347 3-05FS July.

Rockwell, 1988. Closure Plan Building 443 No. 4 Fuel Oil Tank. U.S. Department of Energy Rocky Flats Plant Golden, Colorado April 5, 1988

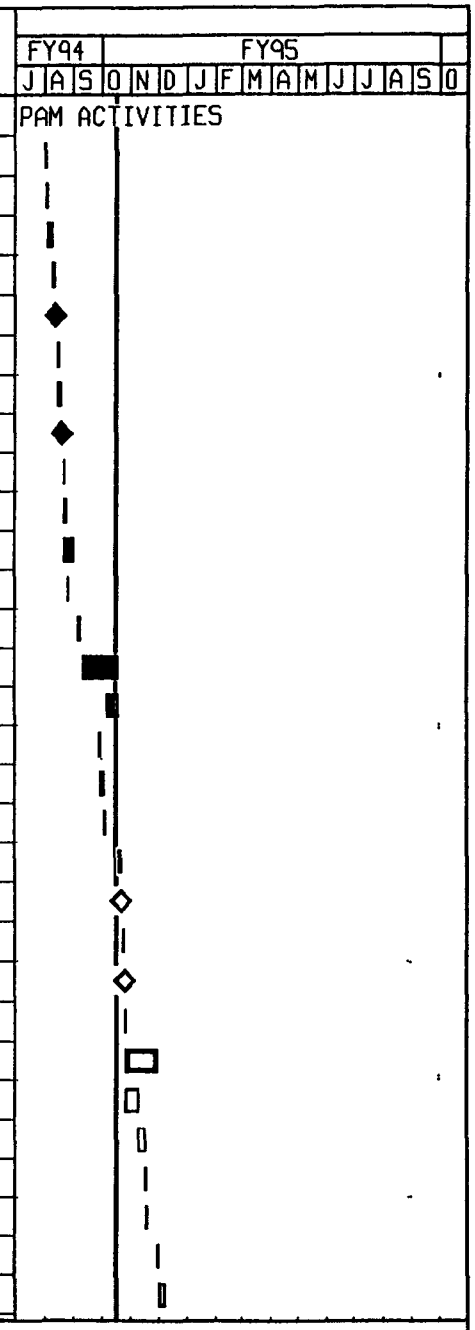
Slaten, 1994 Letter dated June 23, 1994 from Steven W Slaten, IAG Coordinator for DOE to Martin Hestmark, EPA Region VIII, and Gary Baughman, CDH 94DOE07111

ATTACHMENT 1

IMPLEMENTATION SCHEDULE FOR THE BUILDING 443

TANK #3 AND #4 PROPOSED ACTION MEMO

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	RESP	EARLY START	EARLY FINISH
1245101000	EVALUATE UST vs. RCRA vs CERCLA	0	EG&G MGMT	2AUG94A	2AUG94A
1245101010	TERMINATE CURRENT SOLICIATION (FP CONSTRUCTION)	0	JENNINGS	3AUG94A	3AUG94A
1245101020	REVIEW PROPOSED ACTION MEMORANDUM (PAM) PROCESS	0	JENNINGS	4AUG94A	9AUG94A
1245101030	INITIATE PAM STATEMENT OF WORK	0	JENNINGS	10AUG94A	12AUG94A
1245101040	STATEMENT OF WORK FOR PAM TO SUBCONTRACTOR	0	JENNINGS		12AUG94A
1245101045	SUBCONTRACTOR PROPOSAL ON PAM	0	JENNINGS	15AUG94A	16AUG94A
1245101050	NEGOTIATE PAM CONTRACT	0	JENNINGS	16AUG94A	18AUG94A
1245101060	AWARD PAM CONTRACT	0	JENNINGS		19AUG94A
1245101065	KICK-OFF MEETING FOR PAM	0	JENNINGS	22AUG94A	22AUG94A
1245101067	PROJECT INFORMATION TO KAISER	0	JENNINGS	22AUG94A	24AUG94A
1245101070	RESEARCH & DEVELOPMENT OF PAM	0	KAISER	22AUG94A	2SEP94A
1245101075	OUTLINE OF PAM	0	KAISER	26AUG94A	26AUG94A
1245101077	CONSOLIDATION OF PAM DATA	0	KAISER	6SEP94A	9SEP94A
1245101080	REVIEW/COMMENT ON PAM (EG&G/DOE)	3	JENNINGS	12SEP94A	19OCT94
1245101081	ADDITIONAL AGENCY REVIEW	3	SARTER	7OCT94A	19OCT94
1245101083	DEVELOP BUDGET/SCHEDULE FOR FY95 KAISER SUPPORT	0	JENNINGS	29SEP94A	29SEP94A
1245101085	INITIATE PR FOR FY95 ICF KAISER CONTRACT	0	JENNINGS	30SEP94A	30CT94A
1245101088	NEGOTIATE FY95 CONTRACT WITH ICF KAISER	0	JENNINGS	4OCT94A	5OCT94A
1245101090	INCORPORATE PAM COMMENTS	2	KAISER	20OCT94	21OCT94
1245101110	ISSUE DRAFT OF PAM FROM KAISER TO EG&G	0	KAISER		21OCT94
1245101140	REPRODUCTION OF DRAFT PAM	1	KAISER	24OCT94	24OCT94
1245101160	RECEIPT OF PAM FINAL DRAFT	0	JENNINGS		25OCT94
1245101165	DISTRIBUTION OF PAM TO READING ROOMS	1	FORBES	26OCT94	26OCT94
1245101170	PUBLIC REVIEW/COMMENT OF PAM (30 DAY)	22	DOE	27OCT94	29NOV94
1245101172	RESEARCH AND DEVELOPMENT OF SAMPLE ANALYSIS PLAN	10	KAISER	27OCT94	9NOV94
1245101174	REVIEW AND COMMENT OF SAMPLE ANALYSIS PLAN (SAP)	5	KAISER	10NOV94	16NOV94
1245101176	REPRODUCTION OF THE SAMPLE ANALYSIS PLAN (SAP)	1	KAISER	17NOV94	17NOV94
1245101178	ISSUE SAMPLE ANALYSIS PLAN (SAP)	1	KAISER	18NOV94	18NOV94
1245101180	RECEIVE COMMENTS FROM PUBLIC AGENCY/REVIEW	2	DOE	30NOV94	1DEC94
1245101190	DISPOSITION COMMENTS FROM PUBLIC AGENCY/REVIEW	5	JENNINGS	2DEC94	8DEC94



Plot Date 19OCT94
Data Date 17OCT94
Project Start 2AUG94
Project Finish 30OCT95

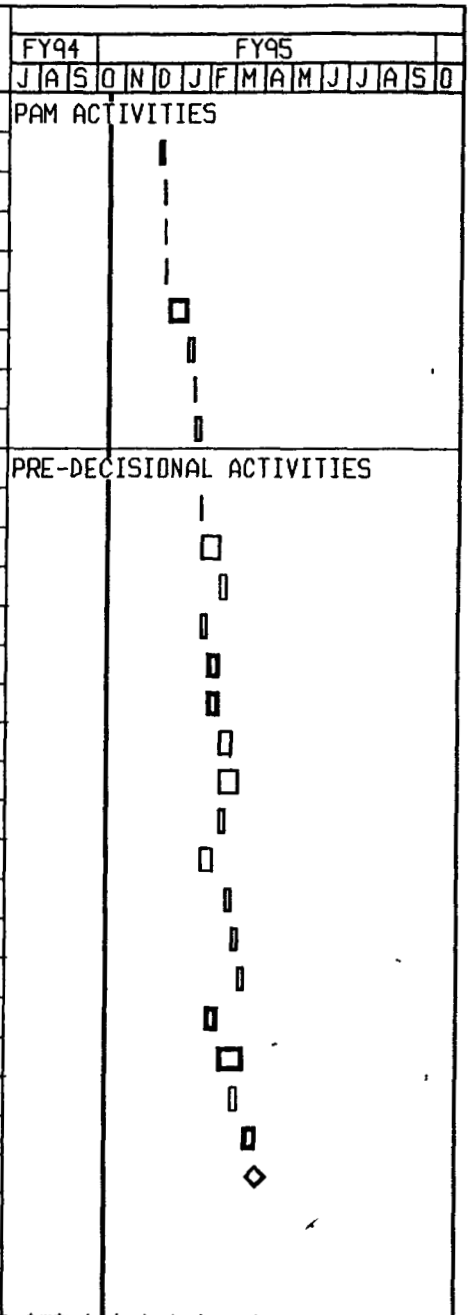
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

TRV7 Sheet 1 of 2

ACCELERATED CLEAN-UP ACTIVITIES
BLDG TANK RMVL & SOIL REM IHSS #129
FIXED PRICE ACCELERATED SCHEDULE

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	RESP	EARLY START	EARLY FINISH
1245101195	INCORPORATE COMMENTS FROM PUBLIC AGENCY/REVIEW	3	KAISER	9DEC94	13DEC94
1245101200	REPRODUCTION OF FINAL PAM	1	KAISER	14DEC94	14DEC94
1245101205	TRANSMITTAL OF PAM - EG&G TO DOE	1	JENNINGS	15DEC94	15DEC94
1245101206	TRANSMITTAL OF PAM - DOE TO AGENCY	1	SARTER	16DEC94	16DEC94
1245101210	CDH/EPA REVIEW/APPROVAL OF FINAL PAM	10	SARTER	19DEC94	9JAN95
1245101215	INCORPORATE AGENCY COMMENTS INTO PAM	5	KAISER	10JAN95	16JAN95
1245101220	CDH/EPA BRIEFING/APPROVAL OF FINAL PAM	1	SARTER	17JAN95	17JAN95
1245101230	PAM SCHEDULE CONTINGENCY	5	JENNINGS	18JAN95	24JAN95
1245101240	INITIATE PROJECT - PREDECISIONAL ACTIVTIES	1	JENNINGS	25JAN95	25JAN95
1245101243	WSRIC DEVELOPMENT	15	FROST	26JAN95	15FEB95
1245101246	WSRIC APPROVAL	5	FROST	16FEB95	22FEB95
1245101250	SCOPE DEVELOPMENT	5	JENNINGS	26JAN95	1FEB95
1245101260	REVISE PROJECT SCHEDULE	10	TRUJILLO	2FEB95	15FEB95
1245101270	PREPARE SCOPE ESTIMATE - FIXED PRICE	10	WOLFE	2FEB95	15FEB95
1245101310	REVISE CORRECTIVE ACTION PLAN	10	PETERSON	16FEB95	1MAR95
1245101320	DEVELOP SAMPLING ANALYSIS PLAN	15	KAISER	16FEB95	8MAR95
1245101330	REVISE WORK PACKAGE	5	JENNINGS	16FEB95	22FEB95
1245101332	WRITE STATEMENT OF WORK FOR FIXED PRICE CONTRACT	10	DRAKE	26JAN95	8FEB95
1245101335	EG&G - ER BCP BOARD	5	JENNINGS	23FEB95	1MAR95
1245101340	DOE - ER BCP BOARD	5	JENNINGS	2MAR95	8MAR95
1245101343	PCCB - REVIEW/APPROVAL	5	JENNINGS	9MAR95	15MAR95
1245101350	EG&G REVISED NEPA DOCUMENTATION	10	KNAPP	2FEB95	15FEB95
1245101360	DOE REVISED NEPA DOCUMENTATION	20	SARTER	16FEB95	15MAR95
1245101400	REVIEW CORRECTIVE ACTION PLAN	5	JENNINGS	2MAR95	8MAR95
1245101430	PRE-DECISIONAL SCHEDULE CONTINGENCY	10	JENNINGS	16MAR95	29MAR95
1245101440	AUTHORIZATION OF PROJECT	0	ANDERSON		29MAR95



Plot Date 19OCT94
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Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

TRV7 Sheet 2 of 2

ACCELERATED CLEAN-UP ACTIVITIES
BLDG TANK RMVL & SOIL REM IHSS #129
FIXED PRICE ACCELERATED SCHEDULE

Date	Revision	Checked	Approved